THE AMERICAN ARCHITECT AND BUILDING NEWS.

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THE report to the Ventilation Commission on the Representatives' Hall at Washington, by Mr. Robert Briggs, civil engineer (who was in consultation with Gen. Meigs at the first planning of the ventilation of the Capitol), contains a clear and interesting account of the appliances that were used, and the reasons that led to their use, and an examination of their subsequent history and present condition. It appears pretty evident from Mr. Briggs's account, that the original arrangements, planned with great care, were adequate for their purpose, and that the trouble which has since arisen has come of alteration, negligence, and misunderstanding. The plan was not to introduce currents of heated air, and allow them, by commingling with the air of the room, to raise the temperature of the whole to the necessary degree, then taking off the surplus air from the mixture, as is the common way, — a means of keeping up the heat with but a small supply of air, — but to bring in a large supply of air at the temperature required, say seventy degrees, furnishing a sufficient quantity to keep a steady flow of uniform and essentially pure air throughout the hall. Provision was made for forcing in by the fan from fifty to a hundred thousand cubic feet of air per minute, according to need, — enough to change the whole air of the hall in ten minutes, and to supply sixty cubic feet of air each, per minute, to sixteen hundred persons.

THE manner of introducing the air was carefully studied, because a current of air at seventy degrees is unpleasantly cool; and, to avoid dirt, floor-registers were avoided, and the air was let in where the semicircular platforms, in which the desks and seats were placed, gave a slight vertical face in each side of the radiating passageways which sloped down between them, toward the speaker's desk. The currents of fresh air, coming horizontally out of opposite perforations, met immediately above the floor of the aisles, were deflected upwards, and spread into broad, slow-moving columns which, rising to the ceiling, steadily changed the atmosphere of the hall without being sensible to the persons in it; and escaped through a crowd of perforations in the ceiling, passing outdoors through louvres in the roof. Subsidiary openings carried the supply to remote parts of the hall. All this was excellently contrived to give a large supply, well distributed, and introduced in such a way as to be unnoticed. For a year or two, Mr. Briggs says, the ventilation was perfectly satisfactory. One day, however, in consequence of a change in the seating of the house, the aisles were filled, and the platforms extended over them, the registers being put in the front steps of the platforms which rise one behind the other. The incoming air, now directed against the legs of the members, of course felt cold. When the supply was cut off, the hall became intolerably close; and when the air was let on again, and heated till it no longer felt cool against the legs, the hall grew hot past endurance. Then subsidiary steam-heaters were set under the floors, and there followed a series of experiments which we have not time to recount. At present, Mr. Briggs says, the original heating apparatus is in good condition, except for some coils of pipe that have been disabled by frost, and shows that it has been in the hands of competent persons; but the ventilating appliances have been obstructed and tinkered and misused till they are altogether out of order, and the tradition of their use has long been entirely lost among the employees at the Capitol.

THE report, though it proclaims the inefficiency of the present ventilation, hardly accounts for the bad quality of the air that is said to be supplied. It mentions, to be sure, a considerable excess that is noted in the air, driven out by some new exhaust-fans in the roof, over that which is supplied; an excess which must come in from the corridors and outside rooms, where the air is said to be bad. But this does not seem sufficient to account for all the phenomena that are reported. Mr. Briggs finds that the air-passages and apparatus are clean, though he implies that they are greatly neglected and obstructed; and he appears to argue that there is nothing the matter with the ventilation but its bad performance. Mr. Severson's report, quoted some time ago (No. 17, April 22), complains that the ducts furnish air tainted in a variety of ways. This looks like a conflict of authorities. It is easy to believe, however, that, in a world like this, where there is neglect there is dirt. Mr. Briggs urges that the air for the supply is taken at the best points outside the building; and it would seem with reason, if local contamination is not allowed to interfere. He argues effectively against the project of taking in air through a tower built for the purpose. He also argues in favor of upward ventilation, against downward; but the argument is incomplete, and therefore not effectual. There is no doubt that either system can be made to work, and there seems to be none that the original ventilation of the Hall of Representatives would have done well if it had been properly administered.

THE stone-cutters' strike in Brooklyn, of which we have before spoken (No. 28, July 8), still continued at our last accounts; but negotiations have been going on between the employers and the journeymen. These last, wishing to get to work again, but under the thumb of the New York Association, had met their employers to hear what terms could be made with them. The negotiation must be conducted through the journeymen, because the New York Society's rules refuse the employers any hearing until they have submitted to its decrees. The journeymen, on the other hand, are not allowed to offer or accept any terms, but can only transmit and obey the orders from the society. All this is a very pretty bit of paternal government: one can only wonder how the employers came to let it be fastened on them. Mr. Bradley, in whose yard the trouble began, refuses to employ any man who belongs to a society to which the offending Warnock belongs, until Warnock is made to refund the excess of wages which he extorted. The other employers make common cause with him, and agree to submit to the laws of the society only when it renounces its claim to fine the employers, and forces Warnock to refund to Mr. Bradley his over-pay. It is said that a rule of the society allows its members to agree to work for any wages that are offered, provided that, on payment, they demand the full society rates, and strike if these are refused. These quarrels tend to drive the stone-cutting away to Newark, where it can be done more cheaply, and out of the jurisdiction of the New York Society. It was said that the strike-money had not been paid to the men; and one employer stated that the strike had cost Brooklyn not less than a hundred thousand dollars.

NOT long ago Mr. William Boon, in digging into a knoll on his farm in Washington County, Penn., found that it was an ancient burial-mound. Examination showed that a good part of the mound had already been dug away; but in what was left he found the remains of many human bodies. The skeletons were much decayed, and the smaller and thinner bones had almost all perished; but enough of the larger bones remained to show, in the part of the mound which he examined, the positions of something like a dozen skeletons. They were arranged in groups like stars, their heads against a bowlder in the centre, and their bodies radiating from it. The shoulders of each body lay upon a flat stone. The bodies were apparently separated by walls of stone, perhaps covered by some sort of stone vaults, if we may judge by a passage in the Cannonsburg *Herald*, from which our description comes, which passage is not quite clear to us. It reads thus: "The remaining stones, used as a wall of separation, or a covering (this was hard to determine, from the advanced stage of decay), were systematically placed or built, so that they overlapped, and made it difficult to remove them unless the keystone could be found."

IT has been thought that the mound-builders were confined to the valleys of the Mississippi and the Ohio; but a correspondent has written to the New York *Evening Post* of burial-mounds that have been found in Chautauqua County, N.Y., and even as far north as Genesee County, where he says some years ago an old settler opened a mound, which he found to contain a group of skeletons arranged radially in a circle, like those mentioned; but with their feet instead of their heads in the centre. Recent examinations of the so-called Merriweather Mound in Ballard County, Ky., have shown the remains of a small race, estimated to be only about four and a half feet high, buried in rather a disorderly way, but each with an earthen vessel beside his head, after the fashion of the mound-builders, though here only on the right side (in some mounds they are found with the vessels beside both ears). These people offer a sufficient contrast to the giants whose remains have been discovered in the Kentucky caves; but they are outdone by the race of pygmies whose burial-places have been discovered in some parts of Middle Tennessee. One field was mentioned last spring, which had just been ploughed up, in Hillsborough, Coffee County, and which was found to contain some half a dozen acres of little people about three feet high. Their number was estimated at seventy-five thousand or more, a computation which was explained by their being inserted upright, like pins in a cushion.

THE most interesting journal that last week's foreign mail brought is *Public Health*, a journal of the progress of sanitary science, which is enclosed with the *Building News*, owned by the same proprietors, in order that the circulation of the former may be increased. The excellence of the articles shows that it only needs to be more generally known in order to become popular. The account of several processes of cremation shown at the exhibition of sanitary appliances now holding at Brussels is peculiarly interesting. The *Building News* allows Mr. Waterhouse's new Manchester Town Hall, or Guild Hall as they propose calling it, to monopolize all the illustrated pages. Those who are not in the habit of seeing this journal regularly would do well to go to a public library, from time to time, and look over the weekly "Architectural Science Class." In the same vein as these articles is "The Principle of the Truss" in the current number. The noticeable articles in the *Builder* are two architectural descriptions, one of "Kensington House," the other of "Romsey Abbey;" and the continuation of "Healthy Habitations." The sole illustration is the Votive Church at Vienna, which commemorates the escape from assassination of the Emperor of Austria in 1853. In the *Architect*, as in each of the two other journals, is the paper on "The Architect and his Pupil," read before the Architectural Association by Mr. Thomas Blashill. Prof. Kerr's paper on "The Renewal of the Study of Greek Architecture," in this number, as well as several recent articles on Greek art and architecture, seem to indicate that the revival of classic architecture is exciting more and more attention. The illustrations in the *Moniteur des Architectes*, are a double-page etching of a sketch for a chimney-piece in the style of Louis XIV.; a plan and section of the theatre at Rheims; and the designs for an asylum for old men at Le Chaise-le-Vicomte. In the text will be found the continuation of Prof. Donaldson's memorial on the project for a Temple of Victory at Messina, and the last of the critiques on the *Salon* of 1876.

AMERICAN ARCHITECTURE. — PAST.

IN the retrospection which the centennial year calls out, it is natural to take a look at the progress we have made in architecture during the hundred years. If we think of the amount of building that has been done in the last quarter-century, of the number of buildings, public and private, their size and variety, and compare this with the beginning of the century, we shall probably be impressed with the building activity of our day, and we may forget that though our grandfathers' opportunities were small, compared with ours, yet they made pretty good use of them; that their work had certain good qualities, which it is well worth our while to keep, and which it is also quite possible for us to forget and lose in the abundance of our present opportunities.

The architecture of the Colonies was of course derived from England; and it was drawn off at a pretty low ebb, just when the vagaries of the Queen Anne style, the last trace of the sturdy independence which had for a hundred and fifty years resisted the growing rigors of the Renaissance, had given way to the narrow formalities of the Georgian period. The style inherited here, therefore, was pretty narrow, formal, and lifeless. Nevertheless it had been formalized by the great artists of the Italian Renaissance from whom it had been handed down, and who had given great study to the most careful and elegant adjustment of its details and its rules. It was a style whose ancestry was good, and whose breeding had always been careful. The precepts of Vignola and Palladio had been translated, illustrated, and codified, by Wren and Chambers. The result was a system of proportions studied with great refinement; a series of forms and details, limited, but sufficient for practical uses, and adjusted to those uses and to each other with nice skill; and, finally, a body of rules, concise, clear, and coherent, easily remembered and applied, and of an authority as unquestioned as are the doctrines of the Church of Rome in the most orthodox community, even where people did not always take the trouble to carry them out. Such a system of building was exactly adapted to the wants of a people like that of the United States a hundred years ago. A good deal of Old-World taste and luxury was by this time mingled with the simplicity and scantiness of Colonial life. There was a demand for elegance: the old stately traditions of society called for an ample, dignified, well-balanced, refined, and somewhat formal kind of architecture. Moreover there was no trained class of architects to supply the want. A body of skilful mechanics, accustomed to the unquestioning use of certain definite forms, proportions, and details, could supply what was needed in ordinary building. They never thought of indulging in vagaries of design, and only used such modifications of the established forms as necessity or some decided convenience dictated. Almost all the private architecture, probably most of the public architecture, of the

country, was designed by such men, in consultation with their employers. It was only in cases of special grandeur or difficulty, that the few men in the country who professed to be architects were called in.

Work done in this way always retained the mark of its good descent. It might be monotonous and uninteresting, but never lost the character of good breeding and refinement which its progenitors impressed upon it. The houses that remain to us from the beginning of the present century are almost all spacious-looking, dignified, and more or less elegant. The detail may be thin and even wire-drawn, but it is never distasteful. Cornices, brackets, mouldings, are always profiled with refinement. Ornament, even where it is most profuse, is not coarse or pretentious: being confined by prescription to certain positions, it is not obtrusive.

We have dwelt somewhat at length on this condition, because it illustrates a point which our architects nowadays are somewhat prone to overlook, — the advantages of working in a definite and well-understood style. The style was feeble, lifeless, monotonous, and, in the hands of a man of original genius, would have been a poor tool; but, to the men who had to use it, it was salvation. They worked in it as the workmen of old worked in nobler styles; as the Indian workmen, to whom Mr. Fergusson points as the only true example of our time, work in theirs, — naturally and without question.

In due time the Greek revival reached the country, strewed it with porticos, and converted churches, town-halls, banks, and even houses and barns, into temples. This was disastrous; for it turned every thing into the likeness of something else, and degraded a noble form to all sorts of incongruous uses and foolish imitations. Nevertheless building did not altogether lose its refinement: a certain mark of artistic parentage lingered upon it. Ornaments and mouldings were carefully reproduced or studied by the light of good models, and were seldom without a trace of elegance. The modern Doric portico that served for a front-door porch, though a foolish, was usually a refined and often a graceful thing. The wrong and absurdity of misapplied design found some atonement in the feeling that was encouraged for harmony of form, and nicety and moderation in detail, which were a prophylactic against coarseness and vulgarity. Up to this point, the whole building of the country was sober, orderly, and decent.

But after a while the Gothic revival which had set in abroad made itself felt here. It did not control this country as it controlled England; but it did much worse for us. It upset all our good habits of work; and, while it took away from unskilful men the safeguard of a definite rule of procedure, at the first it supplied them with no principles of guidance. Here was a style full of picturesquely attractive forms, which had never been analyzed and formulated by skilful artists, and in the use of which, therefore, every man's own mother-wit was his only guide. Here was a great community, growing fast, quite unsupplied with buildings to suit its needs, and calling for an immense amount of work; a large, enterprising body of mechanics, altogether unused to design, but having plenty of confidence in themselves, and believed by a good part of the community to be as capable of design as anybody; and there was no trained and organized body of architects to fix the standard of taste. The vagueness of taste and study that followed the mediæval revival quickly began to tell here. Not one but a dozen new styles were given us for imitation. Since nobody understood them, nobody could prove that another did not. The capable designers were too few to supply the demand, — too few and too isolated to fix a standard by which others could be tried. Mr. Downing and a host of incapable persons published books full of bad designs; and enterprising carpenters and masons, or amateurs who could or could not handle a pencil, with these books in hand, felt themselves as good as architects, — perhaps were as good as many, — and fell to building Gothic and Norman churches, Italian villas, Elizabethan mansions, Tudor cottages, nondescript halls, schoolhouses, banks, and "stores," all over the country. It was a pretty employment, and there was great demand for it: no wonder that a great many persons were suddenly moved to consecrate themselves to it entirely. Men left the plane, the trowel, and the easel; and a swarm of architects arose in the land. Naturally the profession, thus constituted, failed to command the respect of the public. A large part of it could not build, another large part could not draw, and only a very small part could design. The public could estimate the first of these faults better than the others; and naturally inclined towards the "practical men," whose work did not make them uncomfortable, though it might be bad architecture. People at large could not be expected to single out and distinguish the small nucleus of capable men whom the profession contained; and all suffered in the general discredit. The profession missed public confidence just when it was important that it should take strong hold of it.

Of course, under these circumstances, any general discipline was impossible, and style went to the bad. Two most unlucky opportunities concurred to make things as bad as possible. The first was the incursion of the "French roof," so called. It was a feature simple and salient enough to be handled by the most uneducated designer; it was new, and it commended itself by its practical uses. It secured at one stroke fashion, convenience, and style. Accordingly it, in the Yankee shape it assumed, rapidly pervaded the whole country, and converted most of our dwellings into shapeless boxes. The other opportunity was the immense development of planing-mills and jig-saws. These easy multipliers were a temptation not to be resisted. Enterprising carpenters ran riot in scroll-brackets and ugly mouldings; and all the common buildings of the country were covered with coarse ornament. It is difficult to judge whether the cheap books of design or the jig-saws did most mischief, or whether the plague was in the air, and could not be stayed. At any rate, it was a misfortune to have incendiary stuff sown abroad just when all the restraints of style were loosened, and when a myriad of active-minded, untaught designers, who, a few years before, would have gone on soberly in the old safe way, leading gradually, we will hope, to something better, were left to their own devices. It is surprising and distressing to see the quickness with which the good habits of work which had prevailed disappeared, — to see how the sense of form was lost, and how rude and ungainly outlines, clumsy details, coarse mouldings, took the place of the well-considered work of the years before; how the common building of the country lost almost at once its character of decent refinement, and flowered into indescribable vulgarity.

Meanwhile the capable practitioners were without organization or united influence, and worked in different ways, The chief buildings at Washington fortunately came into the hands of an architect whose taste was severe, and his work cultivated, beyond that of most of his contemporaries; and we were spared the horrors of design which might have been ingrafted upon the Capitol and the department buildings. The Treasury set itself to stud the country with buildings whose only architectural merit was that they were not frivolous. Some of our architects held loyally to the traditional Renaissance; others took to a stricter classicism; others again to Gothicism; and still others to general eclecticism, which was perhaps, considering the condition of things for the moment, the most dangerous choice of all. The growth of the country and the demand for building led a great many foreign architects to import themselves, especially English and Germans. Of these naturally a good part were young men whose training was incomplete, and their position yet unattained. The cleverer architects exer-

cised a personal influence, and were naturally more or less models for imitation to their neighbors; but neither in design nor in practice was there any received standard. The general architectural movement, which a disciplined and organized body of architects would have controlled, got entirely beyond them, and ran, as we have seen, into utter disorder. We doubt if the common building of any civilized country ever fell into as low a condition architecturally as did ours near the middle of this nineteenth century.

This is the slough out of which for a quarter of a century we have been painfully working our way toward better ground. The American Institute of Architects was formed. Architecture attracted the interest of a larger number of educated people than before, both as amateurs and practitioners; better means of training for architects were developed, and foreign study became more common and influential among them. The profession began to work together; a distincter demarkation was established between building and architecture; a better standard of design and a more uniform practice grew up. The advance in twenty-five years has been surprising.

CERAMICS AT PHILADELPHIA. — I.

IN very few among the arts and manufactures contributing to the Centennial Exhibition at Philadelphia can the educational value of an exhibition be so fully illustrated as in ceramic art. While it is perfectly safe to assert that no one of the nations has submitted altogether the best examples of its skill, it is equally true that in the aggregate of the exhibits may be found represented nearly every known stage of the potter's art, from the rude handwork antecedent to the use of the wheel to the latest productions of civilization. The potter's wheel marks the dawn of civilized life; and the wheel as pictured on ancient Egyptian monuments is as nearly as may be of the pattern of that still employed in Europe, and which the natives of India have inherited from their ancestors in remote ages. It was reserved for an American firm to place in charge of pottery exhibits a person who, professing an extensive acquaintance with all the minutiæ and the merits of the manufacture, never had heard of the potter's wheel, and looked with blank astonishment when asked whether certain productions had been thrown from it.

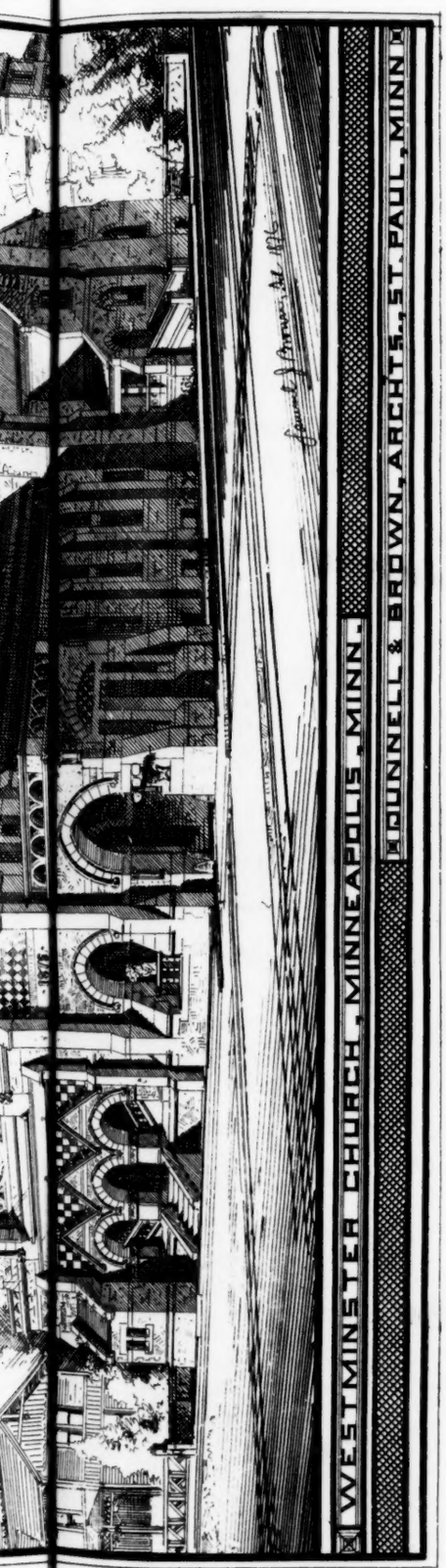
The several classes of pottery are eight in number. The first in order of date, and almost the last to be brought into liberal use, embraces productions in terra-cotta. The explanation of this fact is readily accessible. Red earth was the primitive character of the soil first tilled by human hands; and no other material was available with which to form drinking-vessels, while the sun's rays supplied the heat which is now derived from kilns. As the composition of the soil changed somewhat under the influence of vegetation and the chemical action of climate, what is now called general earthenware would be manufactured, its color following the law of development by which man eventually attained a Caucasian whiteness, instead of retaining the complexion of Adam. In the same manner, a later period gave porcelain to the world. Faience, majolica, *pate-sur-pate*, stoneware, and Parian, are the outcome of refined tastes, incapable of being satisfied with the simpler forms that met the necessities of a nation's youth.

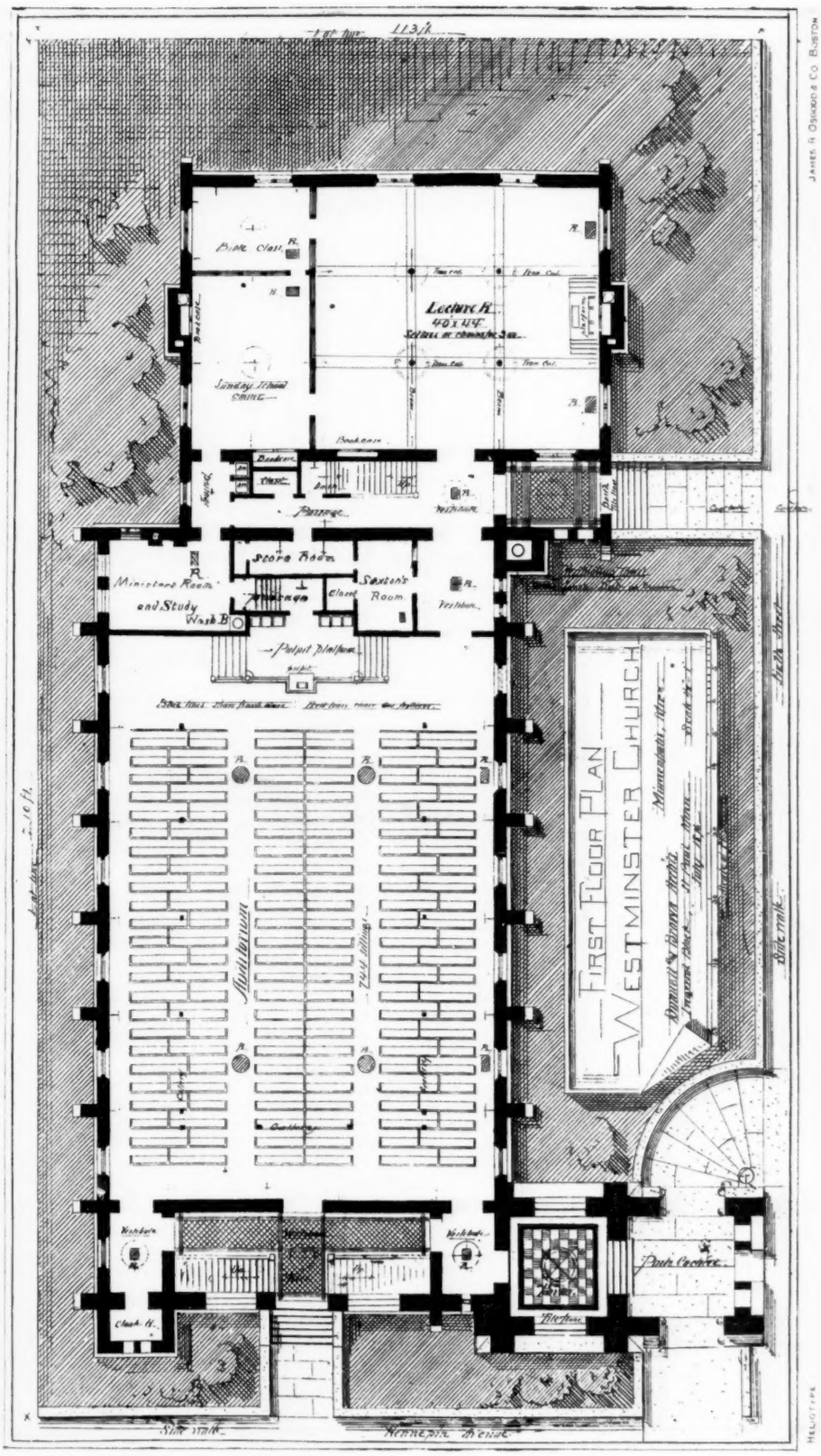
Ceramic art embraces, under the several classes enumerated, a wide range of objects. Vessels for drinking, and for the storage of water, were quickly succeeded by the production of dishes for the table. A considerable interval of time must have passed ere the next stage, that of decorative pottery, was reached. Then came, probably, the earliest efforts in the direction of sanitary pottery, followed by experiments in those branches which may be designated constructive and *de luxe*. Garden and sculpturesque, architectural, mosaic, and tile pottery, each in turn affording abundant room for the development of high art, lead up to the splendid achievements now to be seen in the decorative tiles shown at Philadelphia, imperfectly as these represent the beauty which marks the best productions of European artists. Queen's, Dresden, China, Worcester, Chelsea, Wedgwood, Palissy, Limoges, and biscuit ware, are rather forms and modes of decoration and enamelling than separate classes of ceramics, though each one has been produced in special excellences by the manipulative skill attained in the works associated by name with the manufacture.

Happily, all classes and varieties, with the exceptions of Dresden and Chelsea ware, are exhibited in the Centennial World's Fair. Peru and the Orange Free State have sent examples of the rude art prevalent centuries back among the Indians of South America, and to-day among the Kafirs. These are evidently moulded by hand; and the humor (already noted) of an American attendant's ignorance of the use of a wheel in potteries becomes more perceptible when it is observed that much of the American pottery also shows, in the inequality of its lines, the same primitive method of formation. But one specimen of Kafir work is exhibited; other works that were shipped having presumably been lost in the vessel conveying them. Nearly as rude workmanship may, however, be seen in the Egyptian, Spanish, and Turkish collections; and, in each instance, the same hard, thin glaze, — termed by European manufacturers a smear, — seems to have been applied to the exterior surface of the articles. In the same category may be included some of the exhibits from the Argentine Confederation. Of the simpler kinds of general earthenware, a large quantity of what is popularly called brown stone takes useful forms in the Argentine, British, Victorian, and United States departments.

In decorative pottery, the exhibition falls short of the Parisian standard of 1867. Neither the French nor the German manufacturers have put forth their full strength. The works of Sevres contribute nothing. Dresden vases are conspicuous by their absence, — a circumstance which is hardly to be regretted in the interests of true art. The Imperial Works at Berlin furnish table services only, but of fair average excellence; and there is, besides, a small collection of articles sent by a private firm. Barbizet fills his stall in the French section with imitations of the productions of Bernard Palissy, of which the most that can be said is that they are equal to the originals, but display no advance whatever, and so contribute never a whit to the progress of the arts. Havilands in the same department bear heavily upon faience and painting on tiles, and lightly on majolica, with results that are literally amazing. French art is, indeed, most indifferently represented; and it were a piece of idle impertinence to frame any judgment upon it from the character of the exhibits. Italy confines her attention principally to terra-cotta in sculpturesque forms, with not too fine a regard for public morals; and to reproductions in faience and majolica that appear to have come from the era of monkish supremacy, when impossible animals twisted themselves into impossible knots and tangles. The same criticism is true also as to numerous articles of Japanese pottery. Stereotyped forms, patterns, and decoration, are the sole attractions of Chinese ceramics. Egypt sends not one of her curious products of Nile mud, yielding still, after firing, the perfumes of the scented woods, pulverized by the fall over the cataracts on the way down to the Mediterranean from Lake Victoria Nyanza, although these would have been closely scanned by thousands of curious eyes, and bought up in large numbers by eager purchasers from Europe as well as from the States of the Union. Sweden contributes studies of Roman classics. Denmark, on the other hand, develops a considerable measure of originality in the design and finish of porcelain mantles, which will need further reference. The home exhibits display the most singular mixture of good and bad modelling, of excellent work spoiled by coloring (and that, too, in colors that ofttimes are offensive to the eye), of wonderfully careful elaboration of mere copies, of fine material worse than wasted in flawed work, which is shown and priced for its cheapness, and admitted to be flawed. Yet the table and toilet services in the United States section are worthy of notice for the improved taste which some of them exhibit. If colors be often employed with a reckless disregard of every element of harmonious effect, gold upon white is at least well and pleasingly applied. The only absolute novelties of the display of ceramics are, however, the works of English firms, who excel the best productions of the French, whose secrets they have penetrated. Whatever is wanting on the part of France, England more than supplies, though in one of her own specialties, — decorative tiles, — finer work is familiar to the majority of English people in good society than any here exhibited; and the Davenports do not furnish any of their paintings of porcelain plaques under glaze, which at this moment are drawing attention to the art studies pursued in their works at Longton.

In 1867 the use of terra-cotta in architecture was one of the lost arts in Great Britain. It is now rapidly reviving. In 1867 the French Imperial Factory at Sevres proclaimed, as a marvellous secret, the monopoly of *pate-sur-pate;* but a workman from Trentham in Staffordshire looked at the Sevres products, and at once told the secret; and now Staffordshire and Lambeth have left Sevres behind them in this specialty. In 1867 printed and


WESTMINSTER CHURCH, MINNEAPOLIS, MINN.
DUNNELL & BROWN, ARCH'TS., ST. PAUL, MINN.


FIRST FLOOR PLAN
WESTMINSTER CHURCH
Lecture R.
40 x 44
Sunday School Room
Bible Class R.
Book room
Pantry
Store Room
Sexton's
Ministers Room and Study
Wash B
Clerk Room
Pulpit Platform
Pastor
Vestibule
Park Street
Nicollet Avenue
Hennepin Avenue
Side walk
Park Crescent
Clock H.
Janitor
Janitor
Janitor
Janitor
JAMES R. OSGOOD & CO. BOSTON
HELIOTYPE

HELIOTYPE. JAMES R. OSGOOD & CO. BOSTON.

THE SINTON ROSTRUM

CINCINNATI, O.

J.W. Mc LAUGHLIN, ARCHITECT.

HELIOTYPE
JAMES R. OSGOOD & CO. BOSTON

painted tiles were little known in England: now they receive an amount of care, skill, and appreciation, that shows how vastly the taste of the middle classes has, in a few years, been improved. Doultonware dates only from 1870, and the Lambeth faience from 1873; while inventive ingenuity has so lately as during the last few months given a joint in sanitary and drainage construction that obviates the last objection to the free use of brown stone. The English potters have in one other particular shown such commendable appreciation of true sentiment as the art-workmen of other nations may wisely imitate. Compare the classical subjects in terra-cotta, in the Italian court, with a similar choice of subjects in the Brown-Westhead stall in the British section; and it will be apparent how much more chaste are the latter than the former.

Though not always, then, of the highest order, the ceramic exhibits in the Centennial are fairly complete when taken together, as representing every stage of art, and omitting no one of the recent inventions and revivals. The minute examination of them by our workmen and designers is certain to suggest useful lessons, and may lead to an extension of American manufactures, for which the soils that are requisite are abundantly at hand in New Jersey and elsewhere.

THE ILLUSTRATIONS.

WESTMINSTER CHURCH, ST. PAUL, MINN. MESSRS. DUNNELL AND BROWN, ARCHITECTS.

THIS design was offered in a competition which is as yet undecided.

THE SINTON ROSTRUM, CINCINNATI, O. MR. J. W. McLAUGHLIN, ARCHITECT.

This so-called rostrum is designed to be the central feature of the esplanade which Mr. David Sinton has presented to the city of Cincinnati. (See description in the *American Architect*, No. 16.)

A STUDY FOR THE CHAPEL OF A CHATEAU. MR. J. N. WYATT, ARCHITECT.

This chapel was designed in conformity with a programme issued by the *École des Beaux Arts*.

THE FINE ARTS AT THE CENTENNIAL. — V.

THE DUTCH PICTURES.

THE leaders of the modern Dutch school are not numerous, but there are giants among them. Hollanders, as a rule, paint well; like their ancestors, they imitate with patience, take a keen delight in painting for painting's sake, and have a rare artistic sense, almost as peculiar and national now as it was two centuries and a half ago. To be sure, this natural talent is only met in its high development in certain individuals; but its influence is seen in the humblest member of the profession. The art-exhibit of Holland is in some degree representative, for it has been collected and arranged with taste and forethought. Still it is far from satisfactory; not because the leading artists are not among the contributors, but because there are few specimens of the best work of these men. The same causes that led to the meagre representation from other countries have operated in Holland and Belgium as well; and from the exhibits we can gain but a partially complete idea of the real artistic strength of these nations. In Holland, Israels and Bisschop are the two great names among the figure-painters, — names neither of them very familiar in this country. The religious earnestness of the former in his studies of the poetic aspect of peasant-life finds a parallel only in the famous peasant-painters of France. He depicts scenes of domestic grief with a touching eloquence of expression, joining with this uncommon faculty a rare ability to adapt the scale of color and quality of tone to his subject. His handling is loose and free, sometimes approaching quite complete finish, but oftener like a skilful *ébauche* with all the charm of fresh color and spirited touch. He sends one large canvas, "The Players," — an humble interior with peasants playing cards at a table, — and two small pictures, one of which alone, "After the Storm," shows his best feeling. It represents a fisherman's cabin with two women looking through the open door out upon the sea, watching for the returning sail. It is pathetic and tender in tone, and the story is simply and lovingly told. Bisschop is devoted to brusque effects, to positive imitation of flesh tones, and has a manner of posing his color solidly upon the canvas that is peculiar to himself. Pre-occupied with his favorite effect of light, he often sacrifices drawing, but with a frankness that almost disarms criticism. He contributes but two pictures, both of them life-size studies. "At Church" is evidently a portrait. A prim young maiden is seated in a carved choir-stall or pew, with a prayer-book in her clasped hands. The flesh is strikingly realistic in tone, its luminosity increased by the contrasting depth in the color of the accessories. The drapery is a trifle metallic in texture and hard in outline; but otherwise the treatment is excellent. In the second picture the motive is a similar one, but it is less pleasing. A most exquisite piece of painting is the hand and prayer-book. Phillip Sadée illustrates peasant-life with more positivism and with scarcely less sympathy than Israels; and his subjects in general have nothing dramatic. His contribution, "Gleaning," is perhaps the most complete picture in this section. It is an every-day scene in the dunes of Holland; peasant-women gleaning potatoes in the sandy soil after the diggers have completed their work. It is refined gray in general tone, a gray sky, gray earth, and gray figures; and the out-of-door effect is perfectly given. There is something inexpressibly earnest and almost sad in the figures. They are individuals: we must realize their position, and sympathize with them. It is a story of perhaps little significance; but it is illustrated with real fervor, supported by an unusual skill. A picture in quite the same line, but much less impressive, is Elchanon Verveer's "The Widow," a woman with her children followed by an old man, all bearing fagots along a path among the dunes. It is somewhat strained in expression, and coldly put, but has other qualities that merit recognition. Among the *genre* paintings we should not forget Van Trigt's Norwegian baptism, as skilful a piece of painting as can be found in this class; nor the interior by Valkenburg, with well-drawn figures and exceptional strength of color. A picturesque play of light is seen in them all, and a realism that is unobtrusive because it is honest and effective. The Dutch artists have more resources in their *genre* pictures than almost any other painters, for they have at hand quaint interiors in abundance; the condition of the climate and the customs of society compel an almost uninterrupted in-door life; they are actively inspired by the traditions of their masters, and their own peculiar appreciation of picturesqueness, whether in light, in color, or in form, which is their national birthright.

Madame Henrietta Ronner sends two pictures of dogs, which are remarkable, as, indeed, many of the productions of women artists are, for a decided masculine firmness of handling. There is always found in this artist's studies of dogs a vagabond, almost brutal expression in the animals. This is in some measure due to the peculiar handling. The Dutch landscapes are not of marked originality: few, indeed, are interesting. H. W. Mesdag sends a very free study of waves in motion, which is full of snap and vigor, but is little more than a sketch. A pool with overhanging, sunlit trees, by J. W. Bilders, is scenic but effective; and a gray landscape by L. Apol — a birch forest and road with sheep — is realistically painted. The climax of realism is reached, however, in Weissenbruch's study of an old gateway. The relations of light and shade are faultless, but it would take a De Hooge to make the motive interesting.

LEVER-BRIDGE CHURCH.

THE following extract is taken from a paper on the Adaptability of Terra-Cotta to Modern Church Work, prepared for delivery before the Royal Institute of British Architects, by Mr. Edmund Sharpe, M.A., the author of Sharpe's Parallels and numerous architectural essays: —

"Lever-bridge Church was constructed out of the fire-clay deposits occurring in the colliery of the late John Fletcher, Esq., of the Hollins, near Bolton-le-Moors. These deposits, in the form of small hard nodules, are generally found in the coal measures of that district. On exposure to the air they disintegrate, and fall to pieces, and are then ground to powder under heavy rollers, formed into paste-like clay, and made into refractory fire-bricks for furnaces, coke-ovens, and similar purposes; this, at all events, was the only use to which this material had, up to that time, been applied. Mr. Fletcher, who was the chief promoter and the largest subscriber to the church at Lever Bridge, conceived the idea of building it entirely of this material; and I undertook to prepare the designs for it, and to superintend its construction.

"The church was in due course commenced, completed, and consecrated in the year 1844. It was, I believe, the first work of the kind in modern times in which terra-cotta had been used on so large a scale; for, with the exception of the foundations and the rubble-work between the outer and inner faces of the walls, neither stone nor bricks were used; and, with the exception of that

under the slates, there is not a square foot of plaster in the building, the face of the walls inside and outside being formed of fire-clay blocks, in five-inch courses, well bonded into the rubble-work, and built like an ordinary ashlar wall.

"It is a small cruciform church with an apteral or aisleless nave, and a short chancel, north and south transepts, and west tower and spire. It is designed, as will be seen from the drawings exhibited, in the style of the early part of the curvilinear period, *circa* 1320; with a spire of open tracery work, crocketed pinnacles, deeply moulded door and window jambs, parapet of open tracery, traceried windows, all other details characteristic of the period fully carried out. The four arches of the crossing are formed of continuous arches of two orders, carrying the curvilinear ball-flower in one of their hollows. A trefoiled arcade runs round the three sides of the chancel below; and the north and south walls above carry a series of crocketed tabernacle work, having niches intended for memorial brasses. All these works are in terra-cotta. The font, which is an octagon richly diapered and panelled, is also in terra-cotta; so also are the bench-ends, with their panels and finials, and so are the traceried panels of the seat-backs themselves, and those of the pulpit and organ-case. Indeed, the communion-table was originally a terra-cotta structure; but it was objected to as uncanonical, and ultimately removed, and replaced by a wooden table, which, however, has now, under the influence of new ideas, assumed its super-altar, its candlesticks, its gilt cross, and its reredos.

"The three great difficulties which beset the terra-cotta manufacturer are the following: —

"1. The danger of warping either in the process of drying, or in that of burning the material.

"2. The shrinkage of the material, varying as it does in amount, according to the size and form of the piece.

"3. The extent to which the piece has to be fired or burnt, varying according to its size and form.

"No doubt the experience of the last thirty years has done much to reduce each of these difficulties to a minimum quantity; and there are manufacturers here to-night who will probably tell you that they have reduced these three problems to a matter of certainty, and who will guarantee the architect the true execution of his designs according to the exact scale to which he has drawn them: but I must remind you that we had to encounter these difficulties in the year 1842, when there were no Doultons and Bashfields and Cliffs to perform this troublesome service for the architect. Many, in fact, were the experiments that had to be made before we could venture to calculate with certainty that all the parts of a given portion of the design would come together, when set, with the accuracy of stone-work.

"Take, for example, the lower portion of one of the aisle buttresses, as shown in that diagram: it was easy enough to know the probable shrinkage of the coursed blocks of its masonry, but who was to predict beforehand the amount to which the upper and lower members of its base-mould would shrink? Experiments had therefore to be made, which involved the preparation of moulds, and the forming, drying, and burning of the pieces, before any degree of certainty could be obtained; and much was the work of this experimental nature that had to be gone through and thrown aside, before the true scale, to which this detail work had to be designed, could be accurately determined.

"I was of course anxious that, wherever it was possible, the terra-cotta should be solid throughout; it was, however, found impossible in all cases to realize this. In the door and window jambs, arches, and sills, in the buttress set-offs, in the pinnacles, and in the base course, the warping of the moulded lines, and the difficulty of thoroughly burning solid pieces of so great a size, obliged us to abandon the attempt, and to hollow out, to a certain extent, the back of the work; this hollow being filled in with concrete in such a manner as to render the whole perfectly solid.

"The most remarkable feature of the church, no doubt, is its traceried spire, which is built of solid terra-cotta from top to bottom, dowelled together, not with iron which is much less durable, or with copper which is much more costly, but with terra-cotta dowels which are imperishable. The six traceried windows of the tower, transepts, and east end, and the two-light windows of the nave, are treated in the same way.

"The church contains sitting accommodation for three hundred and fifty persons, and cost — as it now stands — twenty-six hundred pounds. What it would cost in stone, I never took the trouble to calculate; but the spire alone would, I should think, cost as much as the whole church has. Looked at as a piece of ordinary mason's work, it would be difficult to find a fault with it; nor would a stranger, seeing it for the first time, deem it, either from the appearance of its color or its workmanship, to be any thing else. Its primative color when first built was a ruddy buff, which is now considerably deepened by an exposure of thirty years to the smoky atmosphere of Bolton-le-Moors." — *Building News.*

CORRESPONDENCE.

NEW BANK. — POTTSVILLE JAIL. — CASTLE GARDEN. — BROOKLYN MUNICIPAL BUILDINGS.

NEW YORK.

THE Jardine Brothers, architects, have in hand a new bank building for the New York County National Bank, to be situated on the south-west corner of Eighth Avenue and Fourteenth Street. The old building was a modest four-story brown-stone, on the north-west corner of the same streets. The new banking-house will be in the "stunning" style of brick, with heavy and profuse brown-stone work. On either side the main entrance stand Scotch granite columns, supporting the porch-roof. The main cornice will be of galvanized iron. In ground plan, the new building will measure 25 x 76 feet. The basement floor, with cellars pushing out under the sidewalks, will have in it the directors' room. The banking story, entered direct from the level of the street, is sixteen feet high in the clear. There are no built-in vaults, since all the locking-up is to be done in portable safes standing against the dead wall. Above the bank are three floors about twelve feet high; the two lowest fitted up as flats, and the upper one for servants' rooms and a roomy drying-loft: it is intended to have the cashier and first clerk occupy these floors as dwellings. The entrance to the apartments is by a private door at the rear end on Fourteenth Street. The design as a whole may be said to be one of the regular corner bank buildings so familiar to New Yorkers, and so regularly adopted by bank-trustees, until it is getting to be an axiom, that, if a church or a bank is to succeed, a corner site must be secured for it. The cost of the new County Bank will be forty-five thousand dollars, a remarkably low price; so low, indeed, as to lead to an inquiry by the directors of the architect, whether an error had not been made when he reported to them the price. The new building is to be ready for occupancy in the early spring.

Napoléon Le Brun is carrying out an addition to the Pottsville, Penn., Jail, to meet the demand for increased accommodation, caused by the arrest of so many "Molly Maguires." The original prison was built from designs furnished by Mr. Le Brun over thirty years ago. The extension will have some seventy-five cells, arranged on the Pennsylvania system, with the corridors in the centre of the building, and the cells on the outside, tier over tier, each with a narrow window-slit. The cost of the addition will be about one hundred and twenty-five thousand dollars.

The destruction of the roof of Castle Garden by fire, on the evening of the 9th inst., has led to a general inquiry, whether it would not be preferable to dislodge the Emigration Commissioners from further use of this old landmark as a landing-depot for their wards. The fire, while making a clean sweep of the wooden roof and the interior fittings, has left the old fort walls standing intact. It is now proposed to utilize this erection as a pleasure-garden, concert-pavilion, or something of that sort, making it a resort where, in addition to artificial attractions, cool sea-breezes, with a fine view down the bay, would be offered. The scheme also includes the occupation of many of the buildings about the Battery for residences. For commercial uses, the property immediately adjoining this seaside park does not pay expenses. The "runners" and land-sharks who prey upon the emigrant would pass away with the removal of the landing-depot; and then there would seem to be few objections to the repopulation of this salubrious part of the island. The daily papers are enthusiastic over the idea; and, should it be carried out, some alterations in the great business warehouses about the Battery will be required before they can be turned into flats, and perhaps the erection of some large apartment-hotels will be necessary. For proximity to the business centre of the city, it far surpasses the dwelling district far up town. It certainly will be novel to see New Yorkers returning to this portion of the island, and settling down as residents of a section from which they fled forty years ago in the march of up-town improvement.

Across in Brooklyn, architecture and politics are getting badly mixed over the erection of some new municipal buildings; and aldermen and architects are engaged in a general tirade of abuse one of another. There was a competition, or the semblance of one; but even before the committee appointed to examine the drawings had finished their work, and while it was to be sup-

posed they were in ignorance, the local papers were discussing the plans, giving the architects' names. When the matter came before the Board of Aldermen, almost every member was found to be the champion of some particular architect and his plan. After much crimination and recrimination, the fight has been narrowed down till it has become a triangular one, — between three architects and their proxies in the Board. Meanwhile letters are being published from almost all concerned, charging all sorts of chicanery upon the others; and altogether there is a most undignified scramble for the right of handling and disbursing the one hundred and seventy-five thousand dollars it is proposed to spend upon the building.

A WORD FOR MECHANICS. — I.

WE are asked, "If there are builders doing more or less work, who are not to be trusted with an order of any moment, how shall we protect ourselves without paying the prices charged by others, about whose integrity there can be no question, but whose prices seem to us extravagant?" The question is a proper one; and, since we have broached the subject, we are quite willing to answer it. The pivot on which this whole matter turns, as we have said before, is one of dollars and cents. We love to cheapen every thing; and we are quite happy if we can make one man do two men's work. This is exemplified in what we expect at the hand of the architect, who is not only required to plan and supervise generally, but is also expected to have an eye to all details, which, in England, are intrusted to a subordinate employed by the client, but under the control of the architect. The architect makes all the designs; and in his office the specifications, working-drawings, and general instructions are prepared. He then makes a careful estimate of the cost; and, if properly qualified for his position, he can do this with an accuracy that will prevent the possibility of the contractors getting more for their work than it is really worth. This done, the plans are put out for a bid; and if the competition is sharp, as is generally the case, there will be quite a discrepancy between the highest and the lowest bid. The client, as we have said before, tempted by the apparent saving, gives it to the lowest; and we have a repetition of what I have already described. But, if the English system of employing a "clerk of the works" were adopted, all this difficulty would be obviated; for a knavish builder would meet with a check at every step; and finding, as he would most assuredly, that he was playing a losing game, he would be careful in the future to put in only such bids as would pay for work honestly done.

"Clerk of the works" is a term not generally understood with us; and "more the pity." In England, the employment of a clerk of the works is the rule, not the exception. He is a man who understands all the branches of the building-trade; not necessarily a mechanic, for he is often a student of architecture, but he must be well posted in the mechanical arts brought into requisition in house-building. He must be known to the architect who appoints him as a man above suspicion, thoroughly correct in all his dealings, and every way competent to take charge of the building. He has his *per diem* paid by the client, as the foreman has his stipend paid by the contractor. When he enters upon his duties, duplicate copies of the specifications, plans, and details, are intrusted to him for his own guidance; and he at once becomes the medium between the architect and the builder. It is the duty of the clerk to be on the premises when work is commenced in the morning, and to remain there till work is at an end at night; to see and examine all the materials that are used, and to inspect the work in all its stages. All accounts are kept by him of extra work (if any), and of all extra material used, and through him the architect is advised of every thing that is done; whilst the architect, in turn, keeps a watchful eye on the clerk, to see that he is no way slack or unfaithful in the discharge of his duties.

Now, if a man will do this work honestly, — and his position depends on his reputation for honesty, — he can and will frustrate all the plans of the "cheap Jack" for working in and covering up cheap stock; and in so doing he will save his employer more than the amount of his wages. But in this country it seems to be idle to talk of such a plan for carrying on work; and there is not one client in a thousand who would be willing to pay the wages of one man to watch his interest, though he may have thousands at stake. He expects the architect to do it all; and he, anxious to have the work well done, gives far more time to the details than the client is warranted in asking, but at great personal sacrifice both of time and patience.

Honest men need no watching; and I would here avail myself of the opportunity to say a word in favor of the American workmen. For many years I have been in constant intercourse with them, employing hundreds in all the different branches connected with the building-trade; and although there are shirks and lazybones in every community, as well as those who are dishonest and half taught, they are the exception and not the rule. The many are industrious and honest. This matter of honesty I have often tested. In the course of a long practice I have frequently had to make extensive repairs in furnished houses, unoccupied for the time, and which of necessity had to be open to the workmen, with no one over them but the foreman, — houses in which books are left on the shelves, bric-à-brac on the mantles, and glass and china in the pantry; and I take pleasure in saying that I have never known the confidence reposed in the mechanics abused. I have known of losses which have been brought home to men lower in the social scale, but none that could be traced to either journeyman or apprentice. "Jours" in good standing will not work for the "cheap Jack" if they can help it, for they know him and despise him; but they have to win their bread, and when times are slack they are forced to take up with any opening that may offer.

And, now that I have said so much in praise of the mechanics, I may be allowed to point to a foible that is tending to the ruin of many a young man of promise, who might soon command an honorable position in his calling, but for one failing, — a love for amusements that waste his money faster than he can earn it. Experience has taught me that it is the single men — those who have only themselves to look after — who are improvident, and are always behindhand. Single men want their wages paid to them often, every Saturday night if possible; and by the following Wednesday they are "short." Married men, on the contrary, do not call oftener than once in two weeks or a month; and even then they are rarely without "a shot in the locker." Tuckerman says in one of his essays, "Men are generally thoughtful as they have responsibilities, and energetic in proportion to their hopes." This is verified in the class here referred to; and it is a serious question, What will be the character of our workmen a generation hence, if those who are coming forward prefer to spend all their earnings on frivolities, instead of husbanding their resources for the day of need?

SKY-LINE.

THE proper study of sky-line is very commonly neglected, and in the composition of towers is, of course, most essential. I recollect hearing an interesting paper by Mr. Beresford Hope on this subject in the year 1864, at the Institute of Architects; yet his good advice has not, apparently, been much taken to heart. Examine two conspicuous examples in London, — one bad, the other good, — i.e., the tower to the Foreign Offices, and the Victoria Tower, Westminster. In an important city like London, it is particularly essential that any building which has pretensions, and rears itself above its neighbors, should possess a decent profile. Perhaps this argument applies still more strongly in a very flat country, where a great tower or spire is the conspicuous object for miles and miles around. How ineffective and confused in outline (at one moment the stranger thinks it a factory-chimney, at another an overgrown poplar) is the celebrated spire of Antwerp Cathedral! for though it improves on nearer acquaintance, when one understands the composition a little better, yet the detail is not first-rate. Again, at Coutances Cathedral, Normandy, the exquisite western spires have a most curious, misshapen appearance at their base when seen afar off, before the detail can be properly distinguished. This, as many of my readers will doubtless guess, is on account of the very important turrets, almost what one might call lesser spires, which are placed at one angle. I might easily multiply instances of failures in sky-line; but such a dissertation just now would be foreign to my purpose. Before, however, branching off into other points of architectural design, I would remark, that in London, where we have so much fog and gloomy weather without a great deal of sunlight, it seems more particularly to behove the designer to study a good outline; for one cannot often properly scrutinize the beautiful detail which sometimes partly redeems a bad contour. How happy are we in this great city to possess such a dome as that of St. Paul's, the exquisite well-turned outline of which never looks otherwise than well, be it in fog or in rain, in smoke, or in the most brilliant sunshine when the ball and cross surmounting it glow like fire! A bright spot of gilding is always charming on the summit of a spire when applied to a cross or weathercock, or to the shifting vane on some pinnacle of a tower. — *The Architect.*

NOTES AND CLIPPINGS.

COMPLETION OF A CHURCH TOWER. — St. Peter's Church, the oldest in Albany, and the third oldest in the United States, celebrated the completion of its new tower recently, by unveiling the gilded cross at the top, placing the figures of the centennial year upon a bell presented to the church by Queen Anne, and by national and sacred airs upon the chimes. The tower is a picturesque piece of Gothic architecture, universally admired for its beauty. The family of the late John Tweddle erected it as a memorial to him, and presented the church with its chime of bells. The church holds a charter from Queen Anne, and has at present in use a silver communion plate presented by her.

A RIGHT ROYAL ROAD. — The following advertisement appeared a short time ago in the Chicago Tribune: "Sketching from nature taught in one lesson for five dollars (not including shading). Pupils taught only at their residences. Address C. — Elveena, Post-Office."

THE HELL-GATE EXCAVATIONS. — Gen. Newton says that the blast will not take place before Sept. 1, at the earliest. Nitro-glycerine in charges of ten pounds will be used in producing the explosion. The work in the galleries is terminated, but there is delay, because the contracts for the explosive are not yet made.

LOOKOUT. — The lookout erected at George's Hill by the Centennial Observatory Company has been formally opened. The structure is of solid wrought iron, and was made by Clark, Reeves, & Co. The height, including roof, etc., is three hundred feet. The first floor for observation is one hundred and twenty-five feet above the ground, and the second floor two hundred and twenty-five feet. There are two elevators, each with a capacity for thirty-five persons. On the two floors eight hundred people can be accommodated and obtain a view at once.

THE DANVERS HOSPITAL. — The contract for completing the Danvers Hospital for the Insane has been awarded for the sum of about $425,000.

THE CONCRETE ACCIDENT. — A correspondent of the *Building News* attributes the giving-way of the concrete floor, of which accident mention was made in the *American Architect*, No. 27, (1) to taking away the platform too soon, (2) to the use of brickbats, which though good as a matrix in walls should not be used in floors, (3) to the excessive thickness (9 inches) of the floor. He gives the following advice, based on personal experience: Design the floor as if of cast-iron, making it as thin as possible, — for spans of six to twelve feet, three inches is sufficient; calculate its weight as for an iron floor, and reduce it where possible; cut and pin into the wall, or have a chase to take a bearing on the walls; wash the ballast and sand with clean water, and do not stint the cement. Use clean broken brick [advice hardly in accord with (2). — *Ed.*] in preference to gravel, but let it be well soaked. Burnt clay ballast is best, but should be soaked in a tub as floor-tiles are soaked. Builders usually lay concrete better than the patentees, because, being afraid of the material, they err on the safe side.

EXETER CATHEDRAL. — The choir of Exeter Cathedral, which has been restored at a cost of about forty thousand pounds, was re-opened June 30. Nearly one hundred tons of marble have been used in the restoration of the pillars, which are clusters of shafts, and were found to be much decayed. They are now semi-polished. The removal of whitewash and dirt brought to light some of the original decorations in many parts; and the original designs and paintings have, as far as possible, been restored. A thousand pounds has been expended in restoring the bishop's throne, a magnificent specimen of oak-carving. For the repair of the sedilia, one thousand three hundred pieces of stone had to be inserted. The reredos, about which there has been so much contention, and which has cost two thousand pounds, has been raised, and now shows more prominently. The Lady Chapel has also undergone restoration. The organ has been almost entirely renewed, the pipes having been recast. There are three thousand of them altogether. The restoration of the nave is now to be taken in hand; and it is estimated that it will cost about ten thousand pounds.

SCHOOL OF FINE ARTS. — The foundation of a school of art applied to industry has been voted unanimously by the Academy of Fine Arts at the Hague.

ANTIQUITIES. — The Louvre has received ten large cases containing Peruvian antiquities, vases of terra-cotta decorated with symbolical figures, inscribed tablets, and monstrous idol figures. These objects have been given by the Austrian explorer, Herr Charles Wiener.

A MADONNA DISCOVERED. — The French journals announce that a Madonna by Giotto has been discovered on the façade of an old house at Villeneuve-les-Avignon.

A FLOWERY ADVERTISEMENT. — The *Glasgow News* advertises itself largely on the slope of the hills behind Ardenlee, where are, planted with sweet alyssum surrounding a core of purple dwarf beet and light-purple candy-tuft, letters forty feet long and six feet thick, making an advertisement 323 feet long, which can be read by passengers on ocean-bound steamers although at a distance of nine miles.

BRIDGE. — The Chenab railroad bridge has a total length of nine thousand three hundred feet, or about a mile and three-quarters; has sixty-four spans of one hundred and thirty feet each; the masonry is of brick.

THE METRIC SYSTEM. — An exchange says that the French metrical system of weights and measures is about to be introduced into Russia. The special committee which is sitting at St. Petersburg, at the premises of the Russian Imperial Technical Society, has not only come to the conclusion that such an innovation would be useful, but it has also emphatically declared, that, if the French system is to be introduced, the present is the fitting moment, adding that the change ought to be accomplished within two years.

A PRECEDENT. — The terms of the agreement between the Office of Works and Mr. Street, the architect of the New Law Courts, may be taken as establishing the right of an architect to an equal percentage on all alterations and additions made by the direction of the employer. The terms are, that the architect is to receive five per cent on the total cost of the work; one-third payable on the conclusion of the contract, another when the builder's contract is signed, and the remaining third on the completion of the work. If any alteration involving additional expense shall be made with the authority of the Commissioners of Works, the architect is to receive five per cent of the increased amount.

VENTILATION OF THEATRES. — Dr. T. Hübner, while making observations in a theatre at St. Petersburg, noticed that the temperature changed from 42° F. at the rising of the curtain to 81° F. at the end of the first act; that the proportion of moisture increased thirty per cent; that the amount of carbonic acid at the end of the second act had become six times as great as at the commencement, and at the end of the performance had so increased as to make breathing very difficult for those accustomed to live in the open air.

VENTILATION OF RAILWAY TUNNELS. — Mr. G. J. Morison says that, when long tunnels without shafts are to be ventilated, fans should be employed to keep up an artificial ventilation; that for a given amount of traffic the power required to ventilate long tunnels varies as the fourth power of the length; that when a long tunnel is to be ventilated it is more advantageous to have a double-line tunnel with trains in each direction, than two single-line tunnels with trains in one direction only; that for every tunnel there is a limit to the amount of traffic, where locomotives are used, beyond which ventilation becomes impossible: this limit cannot be very definitely fixed, but for a tunnel of twenty-two miles it does not exceed a total of twenty trains a day.

LIGHTNING-CONDUCTORS. — Dr. Mann lately showed, at the Science Conference at South Kensington, how unimportant is the form of lightning-conductors, whether rods, ropes, or pipes; and that the real desideratum was that they should be of sufficient size to afford an unobstructed path for the passage of the electric fluid. He insisted on the necessity of a goodly number of points, and above all upon the indispensability of large earth-contact, saying that a lightning discharge passing through a large rod with an ample earth-contact is only a gentle stream of low tension; but that, if the size of the rod or the area of its contact with the earth is diminished, the tension is increased, and the fluid has a dangerous tendency to discharge itself laterally by chance outlets.

MORTAR. — According to a recent announcement in a German journal, the cracking of mortar through dryness or heat may be prevented by the addition of chloride of lime. Mortar so prepared will stick fast even to glass, metal, and similar substances, and may be used for sticking tickets on so as not to come off. The addition of glycerine might answer the same purpose.

THE TEMPLE AT JERUSALEM. — The *Contemporary Review* says that it is probably no exaggeration to say that more has been written regarding the temple at Jerusalem, than in respect to any other building in the known world; and unfortunately, it may be added, more that is wild and utterly untenable. This last peculiarity arises from several causes.

First, because all the earlier restorers were entirely ignorant of the ground on which the temple stood, and of the local circumstances that governed its construction. It was not, indeed, till the spot was surveyed by the late Mr. Catherwood in 1833, and his plans published on a sufficient scale in 1862, that restorers had such a map of the ground as would enable them to adjust their measurements to the locality with any thing like certainty. Though that plan was wonderfully perfect, considering the circumstances under which it was made, it has since been superseded by that made under the direction of Capt. (now Major) Wilson, R.E., in 1864–5, which leaves nothing to be desired in this respect. It can be depended upon almost to inches, and has been engraved on a scale sufficiently large for all topographical, if not quite for all architectural purposes.

A second cause of the wildness of the restorations hitherto attempted is, that the temple at Jerusalem was quite unique. Not only had the Jews only this one temple, but, so far as we know, it was entirely of their own invention, and utterly unlike the temples of any of the nations around them. It certainly, at all events, was quite unlike the temples of the Egyptians or Greeks. It may have had affinities with those of the Babylonians or Assyrians; but, notwithstanding all that has been done of late years, we know so very little of what the temples of Mesopotamia were, that these hardly help us even at this day; and the assumption that this might be so was of no use whatever to earlier restorers.

Having thus no analogies to guide them, and as it is literally and absolutely true that not one stone remains on another of the temple, properly so called, it is not to be wondered at, that early restorers failed to realize the truth, and indulged in fancies which were utterly untenable. In nine cases out of ten their object was to produce a building which would be worthy Solomon in all his glory, rather than a sober reproduction of the very moderate building described in the Bible.